

## Six Percent Agricultural Growth Promotes Poverty Reduction in Zambia

Agriculture is an important mainstay of the Zambian population, contributing about 20 percent of GDP and foreign exchange earnings, and employing two-thirds of the population. Although Zambia's economy has performed relatively well since 1999, the agricultural sector has lagged, with a growth rate of only 1.5 percent per year, and poverty has remained high, at 67.9 percent as of 2004. In light of this, the Zambian government recently launched the Fifth National Development Plan (FNDP) to accelerate poverty reduction and economic growth through increased expenditures in agriculture, and is implementing the Comprehensive Africa Agriculture Development Programme (CAADP). The main target of CAADP is six percent agricultural growth per year, supported by the allocation of at least ten percent of national budgetary resources to the agricultural sector, to help countries reach the first Millennium Development Goal (MDG1) of halving poverty by 2015.

This brief outlines the feasibility of the CAADP targets in Zambia, their potential impacts on the Zambian economy, and the quantity and type of investments necessary to achieve the CAADP goals. The findings, based on an economywide model developed by IFPRI, are summarized here to help policymakers and other stakeholders make informed long-term decisions to stimulate Zambia's economy through agricultural development and meet MDG1.

### ZAMBIA IS CURRENTLY NOT ON TRACK TO HALVING POVERTY BY 2015

Under its current growth path, Zambia will fall short of achieving the first MDG of halving poverty by 2015. Under the IFPRI model's baseline "business as usual" scenario, per capita GDP will grow at 2.6 percent and poverty will decline from 67.9 percent (in 2004) to 57.7 percent in 2015 with overall GDP growth averaging 4.6 percent per year.

Non-agricultural growth is predicted to be stronger than agricultural growth, benefiting urban households more than rural ones, and poverty will not fall far enough to meet MDG1. While urban poverty is projected to fall from 52.8 to 36.2 percent by 2015, rural poverty will decline by only 6 percentage points, from 77.6 to 71.5. Moreover, with an expanding population, the absolute number of poor people will increase from 7.43 million in 2004 to 7.85 million by 2015. Thus, Zambia must accelerate growth and poverty reduction beyond its current trajectory—especially in rural areas—if it is to come close to achieving the MDG1 of halving poverty by 2015.

### IMPLEMENTING CAADP IS FEASIBLE AND WILL REDUCE POVERTY

Although reaching MDG1 is not feasible for Zambia, the CAADP growth target is. Achieving the six percent CAADP growth target will substantially reduce the number of people living below the poverty line. To do so, Zambia will need to make reasonably ambitious improvements in crop yields and subsector growth. This agricultural growth will increase overall GDP growth from 4.6 to 5.3 percent per year and reduce national poverty to 51.9 percent by 2015—5.8 percentage points lower than the 2015 poverty rate under Zambia's current growth path.

Higher growth under the CAADP scenario would lift an additional 780,000 people above the poverty line by 2015 and reverse the trend of increasing absolute numbers of people in poverty. Food security would also improve, with annual average per capita cereal consumption rising from 81.2 kilograms under the current scenario to 93.1 kilograms by 2015 under the CAADP scenario. Therefore, while implementing CAADP will not enable Zambia to reach MDG1, it is still a worthwhile goal due to its welfare effects.

## POVERTY REDUCTION UNDER CAADP HELPS RURAL AND URBAN POOR

Under CAADP, faster agricultural growth will benefit the majority of households, both rural and urban. Compared to current growth, rural poverty will decline by an additional 6.4 percentage points, and urban poverty will decline by 4.8 percentage points. Likewise, rural per capita income will increase by 2.2 percentage points under CAADP while urban per capita income will increase by slightly less, 1.95 percentage points. Ultimately, agricultural growth under the CAADP scenario will not only reduce poverty in both urban and rural areas, but also help correct some of the urban bias in Zambia's current growth path.

The benefits of CAADP also vary within rural areas. Rural households which produce high value crops for export are located in areas with better market access and more favorable agro-ecological conditions and are better positioned to benefit from export-led growth under CAADP. These households will experience additional growth in per capita incomes of approximately 2.7 percentage points, compared to about 2 percentage points in households in other rural regions. Yet rural households producing non-export oriented crops, such as food crops, also benefit under CAADP. These households will benefit directly from yield improvements and indirectly when they reallocate cropland to higher-value crops. Therefore, the benefits of CAADP

will affect different types of farm households in different ways; however, each type of household will experience positive impacts.

## CEREALS AND EXPORT CROPS SHOULD BE PRIORITIZED TO ENSURE CAADP GROWTH IS PRO-POOR

Export crops play an important role in increasing per capita incomes and may be an appropriate priority in Zambia's agricultural growth strategy. However, agricultural growth driven exclusively by export crops will have less of an impact on poverty, because those households are typically less poor than other rural households. Growth driven by food crops, such as cereals and roots, will be more pro-poor, as these crops are an important source of agricultural income for poorer households in more remote areas of the country. These crops also reduce urban poverty by decreasing urban food prices. However, the food crop sector is relatively small and has lower potential to contribute to national economic growth than the export crop sector. This highlights the need for Zambia to not overly rely on one single crop sector for its agricultural growth strategy. Rather, Zambia should pursue a broad-based agricultural growth strategy that encourages export crops for economywide growth, and cereals and root crops for poverty reduction.

## AGRICULTURAL INVESTMENT NEEDS TO INCREASE IN SCALE AND EFFICIENCY

Increasing agricultural growth to meet the CAADP growth target will require additional investment in the sector as well as improvements in the efficiency of public spending. If the rate of return on public spending is high, less additional investment is required to achieve six percent agricultural growth. For example, if Zambia's

Table 1. Estimated Agricultural Funding Requirements (2004 Kw, billions)

	Base	CAADP		MDG1	
		Low Efficiency	High Efficiency	Low Efficiency	High Efficiency
2004	124	124	124	124	124
2005	134	157	145	183	158
2006	145	198	170	269	202
2007	157	251	200	396	258
2008	169	318	234	584	329
2009	183	402	274	860	419
2010	198	508	321	1,267	535
2011	213	643	377	1,866	683
2012	231	813	441	2,748	871
2013	249	1,029	517	4,048	1,112
2014	269	1,301	606	5,963	1,419
2015	291	1,646	711	8,783	1,810
Total	2,362	7,389	4,121	27,090	7,921
Annual Average	197	616	343	2,258	660

Source: Thurlow et al. 2008.

**Table 2. Estimated Funding Requirements (growth rates and shares)**

	Base	CAADP		MDG1	
		Low Efficiency	High Efficiency	Low Efficiency	High Efficiency
Real growth rates (%)					
Total government expenditure	2.4	6.0	5.0	11.7	6.2
Agriculture	8.1	26.5	17.2	47.3	27.6
Non-agriculture	2.2	4.4	4.4	4.4	4.4
Agriculture expenditure shares (%)					
Agriculture expenditure in total expenditure					
2004	2.5				
2010	3.5	7.5	4.9	16.8	7.9
2015	4.5	17.5	8.4	53.0	18.9
Agriculture expenditure in agricultural GDP					
2004	2.6				
2010	3.5	7.3	4.6	15.4	6.5
2015	4.5	17.7	7.7	68.4	14.1

Source: Thurlow et al. 2008.

spending efficiency matched the average for Sub-Saharan Africa, where every one percent increase in total agricultural spending causes at least a 0.3 percent increase in agricultural GDP, it would need agricultural expenditure to grow by 17.2 percent per year to achieve and sustain the CAADP six percent agricultural growth rate (Table 2). This amounts to additional spending (above the baseline funding requirements) of Kw 4121 billion over 2004 to 2015, or Kw 343 billion per year (Table 1). With agricultural spending growing more rapidly than total spending, the government would need to allocate 8.4 percent of its total budgetary resources to agriculture by 2015. However, if government spending is less efficient, then public spending on agriculture would have to grow at about 26.5 percent per year in order to reach the CAADP target. This equates to Kw 7389 billion from 2004 to 2015, or Kw 616 billion per year and represents almost one fifth of the government's total budget by 2015. Therefore, it is important that the government not only increase its investment in agriculture, but also greatly improve the efficiency of its spending in the sector.

### KEY PROGRAMS MUST BE TARGETED

In order to realize the growth and poverty-reducing potential of CAADP, Zambia will need to not only increase public spending towards agriculture, but also prioritize these investments by focusing on long-term programs such as agricultural research and development, irrigation and rural infrastructure.

### Long-term investments

Nearly 40 percent of the resources earmarked for the agricultural sector have been spent on the Fertilizer Support Program and the Food Reserve Agency, which directly support the maize subsector. While spending on fertilizer will lead to large short-term productivity gains, these gains, unlike spending on research or irrigation, will not carry over to the long-term. Zambia needs to sacrifice some of its short-term productivity gains for more sustainable development investments and a more balanced spending portfolio.

### Agricultural Research and Development (R&D)

Investment in agricultural R&D offers great potential for enhancing productivity and reducing poverty. Thirtle et al (2003), for example, show that for every one percent increase in yield brought about by investments in agricultural R&D, two million Africans can be lifted out of poverty. Agricultural R&D spending in Zambia has been declining rapidly and is currently around 0.5 percent of agricultural GDP. Under the FNDP, the Government of Zambia is working to reverse this trend, with plans to allocate about 12.5 percent of the total agricultural budget to agricultural R&D, or about three percent of agricultural GDP. If this planned spending is achieved, it will be higher than the African average of 0.5 to 0.6 percent and the one percent recommended by the World Bank. Most importantly, it will put Zambia on a reasonable path towards developing and disseminating the

technologies needed to realize the crop yields necessary to achieve the CAADP growth target.

### **Irrigation**

The impacts of irrigation are well known, in part due to the success of the Asian Green Revolution in the 1960s and 1970s, which relied heavily on the rapid expansion of irrigated areas. Currently only about three percent of Zambia's total arable land is under irrigation, out of potentially more than half a million hectares. The Zambian government, under the framework of the FNDP, is planning to double the area irrigated by 2010 and has consequently earmarked about 14 percent of the total agricultural budget for irrigation development. This allocation will raise the percentage of area under irrigation to six percent (assuming total crop area remains unchanged), but it is still far below the 30 to 50 percent seen in Asia during its period of massive growth in the agricultural sector.

### **Rural infrastructure**

Investment in rural infrastructure, particularly feeder roads, has been shown to have large poverty reduction effects per unit of investment. Roads allow farmers access to affordable yield-enhancing inputs and inexpensive marketing channels. Zambia's current road density is sparse, at 121 kilometers per 1000 square kilometers, and only 22 percent of its roads are paved. Government spending on transport and communications has been declining and is currently around 3 percent of total government spending.

The government and its development partners are planning to improve the road network through road rehabilitation, which will improve road conditions but not road density. New roads must be built, especially to improve the market integration in areas where large growth and poverty-reduction potentials have been identified.

### **CONCLUSION**

By directing more resources to the agricultural sector through its annual development program and implementation of CAADP, Zambia will be able to significantly improve the well-being of its population. While CAADP does not enable Zambia to achieve MDG1, the six percent agricultural growth target is a goal that is both feasible and leads to impressive poverty reduction. However, in implementing CAADP, Zambia will need to focus its investments to ensure that the economic benefits and welfare impacts reach the poorest. This will not only require increased public expenditures to the sector, but also more efficient spending targeted to long-term programs with well-known beneficial impacts.

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This brief was prepared by Melissa Lambert and Marcia MacNeil based on the International Food Policy Research Institute (IFPRI) Development Strategy and Governance Division Discussion Paper No 00791, by James Thurlow, Samuel Benin, Xinshen Diao, Henrietta Kalinda and Thomson Kalinda. The full discussion paper is available for download at <http://www.ifpri.org/pubs/dp/ifpridp00791.pdf>.

The Regional Strategic Analysis and Knowledge Support System (ReSAKSS) is an Africa-wide network of regional nodes supporting the Common Market of Eastern and Southern Africa (COMESA), the Economic Community of West African States (ECOWAS), and the Southern African Development Community (SADC), in collaboration with the International Food Policy Research Institute (IFPRI) and the Africa-based centers of the Consultative Group on International Agricultural Research (CGIAR), to facilitate the implementation of the AU/NEPAD Comprehensive Africa Agriculture Development Program (CAADP) and other regional agricultural development initiatives in Africa.

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